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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM W. KING

Appeal 2009-002592
Application 10/649,025
Technology Center 1700

Decided¹: July 17, 2009

Before ADRIENE LEPIANE HANLON, PETER F. KRATZ, and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

KRATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

Examiner's final rejection of claims 8-10, 14-22, and 31-41. We have jurisdiction pursuant to 35 U.S.C. § 6.

Appellant's claimed invention is directed to corrosion resistant steel having an iron-aluminum intermetallic alloy layer adjacent a molten zinc miscible steel substrate. The iron-aluminum alloy layer is greater than one micron but less than 5 microns thick.

Claim 8 is illustrative and reproduced below:

8. A corrosion resistant steel comprising:

a mild steel substrate miscible with molten zinc; and

an adjacent iron-aluminum intermetallic alloy layer having a top surface and a bottom surface, said iron-aluminum intermetallic layer having a thickness of greater than 1 micron and less than 5 microns.

In addition to acknowledged prior art, the Examiner relies on the following prior art reference as evidence in rejecting the appealed claims:

Okumura²

JP 06-299312

Oct. 25, 1994

Claims 8-10, 14-16, 20, 21, 31-35 and 39-41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Okumura. Claims 8-10, 14-22, and 31-41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Okumura in view of Appellant's acknowledged prior art (APA).

We affirm the stated rejections for reasons set forth in the Examiner's Answer. Our reasoning follows.

At the outset, we note that Appellant argues all of the commonly rejected claims together as a group in the Appeal Brief with respect to each

² Our references to Okumura are to the English language translation of JP06-299312 by McElroy Translation Company (of record).

of the stated rejections. Thus, we select claim 8 as the representative claim on which we decide this appeal as to each of the obviousness rejections. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007) (The Appeal Brief is required to contain an Argument section wherein Appellant chooses to either argue multiple claims subject to the same ground of rejection together as a group or, in the alternative, furnish separate arguments for some or all of the commonly rejected claims. “Notwithstanding any other provision of this paragraph, the failure of appellant to separately argue claims which appellant has grouped together shall constitute a waiver of any argument that the Board must consider the patentability of any grouped claim separately.”).

ISSUES

The principal issues with respect to both stated rejections are substantially the same: Has Appellant identified reversible error in the Examiner’s obviousness determination by: (1) asserting that the teachings of Okumura would not have led an ordinarily skilled artisan to the claimed subject matter; and/or (2) contending that the claimed subject is attended by unexpected results?

PRINCIPLES OF LAW

Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103).

The Supreme Court has instructed that although the teaching, suggestion, and motivation test “captured a helpful insight,” an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 417-18. *See also*, *KSR*, 550 U.S. at 420 (“[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent [prior art] can provide a reason for combining the elements in the manner claimed.”).

The question of obviousness cannot be approached on the basis that an artisan having ordinary skill would have known only what they read in the references, because such artisan is presumed to know something about the art apart from what the references disclose. *See In re Jacoby*, 309 F.2d 513, 516 (CCPA 1962).

Nor is it necessary that suggestion or motivation be found within the four corners of the references themselves. Indeed, a conclusion of obviousness may be made from ““common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference.”” *See In re Bozek*, 416 F.2d 1385, 1390 (CCPA 1969). After all, it is well settled that “[t]he person of ordinary skill [in the art] is a hypothetical person who is presumed to be aware of all the pertinent prior art.” *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962-63 (Fed. Cir. 1986). *See Okajima v. Bourdeau*, 261 F.3d 1350, 1354-55 (Fed. Cir. 2001) (“[T]he absence of specific findings on the level of

skill in the art does not give rise to reversible error ‘where the prior art itself reflects an appropriate level and a need for testimony is not shown.’”

(quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985))).

Also, it is axiomatic that admitted prior art in an Applicant's Specification may be used in determining the patentability of a claimed invention and that consideration of the prior art cited by the Examiner may include consideration of the admitted prior art found in an Applicant's Specification. *In re Nomiya*, 509 F.2d 566, 570-571 (CCPA 1975); *In re Davis*, 305 F.2d 501, 503 (CCPA 1962); *In re Hedges*, 783 F.2d 1038, 1039-1040 (Fed. Cir. 1986).

Moreover, see *In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003) – “In cases involving overlapping ranges, we and our predecessor court have consistently held that even a slight overlap in range establishes a prima facie case of obviousness. We have also held that a prima facie case of obviousness exists when the claimed range and the prior art range do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties.”

See *In re Geisler*, 116 F.3d 1465, 1469 (Fed. Cir. 1997) (acknowledging that a claimed invention was rendered prima facie obvious by a prior art reference whose disclosed range (50-100 Angstroms) overlapped the claimed range (100-600 Angstroms)); *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990) (concluding that a claimed invention was rendered obvious by a prior art reference whose disclosed range (about 1 to 5 percent carbon monoxide) abutted the claimed range (greater than 5 percent to about 25 percent carbon monoxide)); *Titanium Metals Corp. of Am. v. Banner*, 778 F.2d 775, 776 and 783 (Fed. Cir. 1985) (concluding that

a claim directed to an alloy containing "0.8% nickel, 0.3% molybdenum, up to 0.1% maximum iron, balance titanium" would have been prima facie obvious in view of a reference disclosing alloys containing 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium).

FINDINGS OF FACT

The Examiner has found that Okumura teaches surface-treated steel including an iron-aluminum intermetallic alloy layer having a thickness including 1 micron (Ans. 3; Okumura ¶ 0007). Appellant does not contest that Okumura teaches or suggests a steel having a 1 micron thick Fe-Al intermetallic alloy layer (*see generally* App. Br. and Reply Br.).

The Examiner has found that Okumura's steel substrate would be expected to be miscible with molten zinc (Ans. 3). Appellant does not specifically dispute this finding by the Examiner (*see generally* App. Br. and Reply Br.).

Appellant's Specification defines "mild steel" as steel with a carbon content of less than two percent by volume (Spec. 6). Appellant does not challenge the Examiner's determination that Okumura teaches or suggests a "mild steel" (Ans. 3; *see generally* App. Br. and Reply Br.).

Okumura teaches that processability is deteriorated when the iron-aluminum intermetallic alloy layer thickness is greater than 1 micron (¶ 0009).

Okumura provides a comparison Example wherein a steel material including an iron-aluminum intermetallic layer having a thickness of 1.5 microns and a plating layer that includes silicon was tested for corrosion

resistance and processability (p. 12-13, Table 2, Comparison Ex. 9). The results for Comparison Example 9 show that red rust occurs within 400 - 800 hours and medium cracks were identified at worked sections (Okumura ¶¶ 0022-0024).

Okumura provides an Example wherein a steel material including an iron-aluminum intermetallic layer having a thickness of 1 micron and a plating layer that includes no silicon was tested for corrosion resistance and processability (p. 12-13, Table 2, Ex. 4). The results for Example 4 show that red rust occurs after 1,000 hours and little cracks were identified at worked sections (Okumura ¶¶ 0022-0024).

Okumura does not provide an Example wherein a steel material including an iron-aluminum intermetallic layer having a thickness of slightly above 1 micron, such as 1.001 microns, and a plating layer that includes no silicon was tested for corrosion resistance and processability (*see generally* Okumura).

Appellant's Specification does not furnish corrosion resistance and/or processability test results for Appellant's surface-treated steel (*see generally* Appellant's Spec.).

No record evidence is identified in Appellant's Evidence "Appendix B".

ANALYSIS

Representative claim 8 requires a corrosion resistant steel product including an iron-aluminum intermetallic alloy layer with a thickness in any amount greater than 1 micron but less than 5 microns, which layer is formed adjacent a steel substrate. However, representative claim 8 does not require

any particular degree of corrosion resistance for Appellant's product steel or specify any processability requirement for the claimed steel. Moreover, representative claim 8 employs open "comprising" language that does not preclude the presence of other materials or layers in the steel product so long as the product steel has at least some corrosion resistance.

Appellant's arguments to the effect that Okumura would not have taught or suggested (taught away from, taught as unworkable, indicated as being contrary to accepted wisdom, would not have motivated, etc.), to one of ordinary skill in the art, an iron-aluminum intermetallic alloy layer with a thickness in any amount greater than 1 micron because of the processability problems associated with such a steel as noted by Okumura are not persuasive.

We agree with Appellant that Okumura teaches that employing greater than a 1 micron thickness iron-aluminum intermetallic alloy layer would be expected to diminish processing characteristics of a steel product compared to substantially the same product but made with an intermetallic layer of a thickness of 1 micron or less. However, Appellant has not established that one of ordinary skill in the art, informed by Okumura, would have expected a significant substantive product distinction between a steel product with a Fe-Al intermetallic layer thicknesses of 1 micron and a steel product with a Fe-Al intermetallic layer thicknesses of slightly above 1 micron, say 1.001 microns, which latter value is within the representative claim 8 range. As such, we agree with the Examiner that Okumura is reasonably suggestive, to one of ordinary skill in the art, of a steel product corresponding to the product required by representative claim 8 given the adjacency of the disclosed and claimed thickness ranges (Ans. 3). In this

regard, one of ordinary skill in the art would have been expected to test the limits of the result effective Fe-Al intermetallic layer thicknesses taught by Okumura, particularly under circumstances where the desired processability requirements for a particular steel were not critical.

Moreover, and as noted by the Examiner, Okumura presented comparison Examples of corrosion resistant steel with an Fe-Al intermetallic layer thickness within the claimed thickness requirements, such as comparison Example 9 (Ans. 3). Okumura demonstrates that the comparison Example 9 steel having a 1.5 micron Fe-Al intermetallic layer thickness possesses corrosion resistance (measured by red dust appearance under the test conditions) of up to 800 hours and yielded medium cracks at a bending worked section thereof (¶¶ 0019-0023). Hence, one of ordinary skill in the art is informed by Okumura that steels having a Fe-Al intermetallic layer thickness within the claimed range can obviously be formed with corrosion resistance properties and processability characteristics, which one of ordinary skill in the art can evaluate against particular product requirements. In this regard, representative claim 8 does not specify a particular corrosion resistance or a processability value that patentably distinguishes it over the teachings of Okumura.

As a final point, we note that Appellant has not demonstrated unexpected results, resolution of a long felt need, or criticality for the steel product intermetallic alloy layer thickness range of representative claim 8 by presenting persuasive evidence thereof, such as comparison evidence.

CONCLUSION

Appellant has not shown reversible error in the Examiner's obviousness determination by the assertions maintaining that the teachings of Okumura would not have led an ordinarily skilled artisan to the claimed subject matter. Nor has Appellant demonstrated reversible error in the Examiner's obviousness determination by presenting evidence to substantiate the contention that the claimed subject is attended by unexpected results.

ORDER

The Examiner's decision to reject claims 8-10, 14-16, 20, 21, 31-35 and 39-41 under 35 U.S.C. § 103(a) as being unpatentable over Okumura; and to reject claims 8-10, 14-22, and 31-41 under 35 U.S.C. § 103(a) as being unpatentable over Okumura in view of Appellant's acknowledged prior art are affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(v).

AFFIRMED

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